MITSUMI

IDE 16x SERIES
CD-ROM DRIVE

**INSTALLATION MANUAL
VERSION 5.0**

Table of Contents

Introduction

Thank you for purchasing an FX Series internal IDE CD-ROM drive. For optimal performance and greater reliability, your new drive uses a combination of Constant Angular Velocity (CAV) and Constant Linear Velocity (CLV) modes to vary the spin rate between 12x and 16x, making it ideal for quickly installing software, running a CD-ROM based database, or driving demanding multimedia applications.

FX Series CD-ROM drives are capable of reading compact discs meeting international standards, such as Photo CD, CD-i, ISO 9660, multi-session, CD-Extra and XA (eXtended Architecture) discs.

This manual was written to help you install and use your CD-ROM drive. Please read it carefully before installing your drive, and refer to it if you should have any difficulty with your drive in the future.

The FX Series internal CD-ROM drive connects with your PC system using the new industry standard ATAPI/IDE (Advanced Technology Attachment Packet Interface/Integrated Drive Electronics) definition. This standard allows a CD-ROM drive to work with device drivers supplied by companies that write operating system software. (Microsoft Windows 95, NT, IBM OS/2, etc.)

This means that the CD-ROM drive can be controlled through an IDE interface that may already exist in your system, either from the motherboard or an expansion card. Some sound cards also provide an IDE connection, however, we recommend to connect the CD-ROM drive to a PCI based IDE port for the maximum performance.

If you already have an IDE interface controlling a hard drive, you may attach the FX Series drive as a second device on its cable. Alternatively, you can connect the FX Series drive to an IDE interface card. This may be required if there is no unused IDE connector for the built-in hard disk drive(s) in your system. If you have no IDE card, or if your IDE card is now controlling two hard drives on the same cable, you will need a second IDE card to control the CD-ROM drive. Some newer IDE cards may have two ports, supporting up to two devices each. Refer to your IDE interface user manual for more information about your IDE ports and configurations.

We have created our World Wide Web pages to inform you of new development at Mitsumi. Please visit our Web pages on the Internet at **www.mitsumi.com**. For the CD-ROM drivers and technical support, visit **www.eciusa.com**.

Safety Information
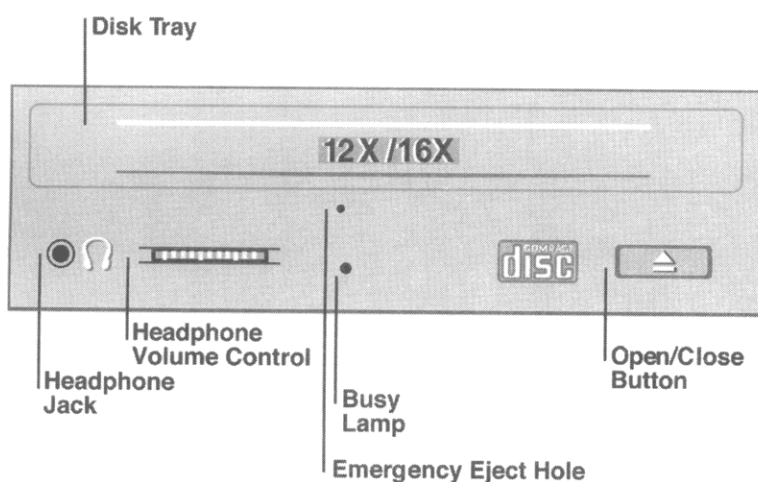
Please follow all safety warnings and instructions printed in this manual and on the CD-ROM drive to avoid damaging your drive or harming yourself.

· Unplug the computer power cord from the wall outlet before doing anything inside the computer enclosure.

· Never attempt to service the drive yourself. No user serviceable parts inside the unit. Opening or removing the cover can expose you to dangerous voltage levels, laser beams, and other hazards.

· Do not attempt to open the unit. The laser beam used by the CD-ROM drive can be harmful to the eyes. All service procedures should be performed by an authorized dealer or distributor.

· Note that the noise level of compact disc audio is much lower than that of an analog audio source. Do not attempt to set the speaker sound level by listening to the noise level. Too high a setting can damage your speakers. Begin with the sound level set low, then gradually increase the volume to the desired level.

Features of the CD-ROM Drive

Front View

· Disc Tray - Opens and closes for disc loading and removal.

· Busy Lamp - On during data access or audio play.

· Headphone Jack - Accepts stereo mini plug.

· Headphone Volume Control - Adjusts sound level from Headphone Jack.

· Open/Close Button - Press to open or close the disc tray.

· Emergency Eject Hole - Use to open the disc tray only when there is no power available.

Rear View

· Power Supply Connector - Supplies power to the CD-ROM drive from a standard PC AT power supply.

· Interface Connector - Connection for 40-pin ribbon IDE interface cable.

· Audio Line Out Connector - Stereo audio output to a sound card.

· Device Configuration Jumper - Sets slave/master setting.

Care and Handling of Your Drive & Discs

Drive Care

· Do not drop or jolt the drive. The lens and prism are delicate and can be damaged by rough handling.

· Do not use your drive near water or any other liquid, and don't bring liquids near your drive.

· To clean the drive, use a clean, soft cloth, dampened with water, on the outside of the drive only. Thinner, benzene, or alcohol-based solvents can mar the finish.

· Keep your drive away from dust and smoke. CD-ROM drives are susceptible to airborne contaminants.

· Do not install your drive in a location that exceeds the maximum operating temperature.

· For best results, use only discs that bear the logo:

· Never place anything on top of the disc tray except a disc. Do not push down on the disc tray when it is open.

Disc Handling

· Keep your CD-ROM discs clean. Use a soft, clean cloth dampened with water or a commercial disc cleaning solution.

· Wipe the discs radially, from the center straight out to the edge, NEVER in a circular motion.

· A scratch in the shape of an arc could make your disc unreadable. Dry the disc thoroughly before inserting it in the drive.

· Avoid touching the disc surface. Always handle discs by their edges.

· Never write on a disc with a ball-point pen or pencil. A scratch on the label side of a disc can damage the data layer.

· Avoid exposing discs to direct sunlight, and avoid storing them in areas subject to high temperature or high humidity.

· Store discs in cases to avoid dust, dirt, scratches, and bending.

· Never bend a disc.

What You Need to Install the Drive

Here's a list of all the things you'll need to install your CD-ROM drive:

· your FX Series CD-ROM drive unit

· 2~4 mounting screws, type M3, length 5mm (0.2 inch) maximum

· 40 pin IDE interface ribbon cable with either 2 or 3 connectors on it

· 3.5 inch floppy disk, containing device driver software and setup utilities for MS DOS.

You may need:

· an IDE interface controller card

· a second 40-pin IDE interface ribbon cable.

If you'd like to play sound from your CD-ROM drive through a sound card, you'll need a 4-pin audio cable with an analog audio connector for IDE on one end and the connector for your sound card on the other. Contact your sound card manufacturer for the proper cable.

Pinouts are labeled on the back of the CD-ROM drive, and are shown in this manual (see Rear View section).
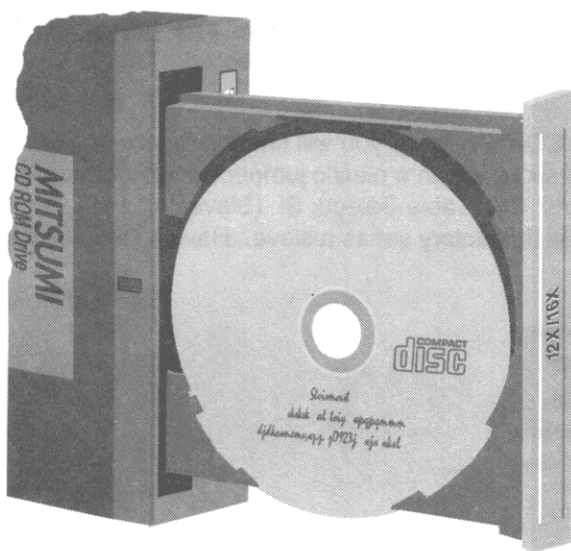
Hardware Installation

It's always a good idea to perform computer hardware installation in a clean, well-lighted area. This makes it easier to see switches, jumpers, and cable connectors, and less likely that you will lose screws or drop and damage delicate components.

First, turn off your computer and unplug the power cable. Turn off and unplug any peripheral devices that may get in your way. Before touching any electrical circuit boards, ground yourself by touching the computer chassis or power supply.

Loosen the cover screws and remove the cover from the computer case - cases vary widely, but the cover is usually secured by two or more screws. It may lift off or slide off from the top, back, or side.

Drive Installation Considerations

The CD-ROM drive can be installed either in a horizontal position or a vertical position. This image represents the vertical position. The model with 4 notches may be installed with the eject button at either the top or the bottom.

Before installing or removing the CD-ROM drive, make sure that there is no disc in the drive and that the disc tray is closed.

Find an empty drive bay for your CD-ROM drive. Empty drive bays may have a plastic or front plate; these covers can be gently popped out, or the mounting screws can be removed.

To determine whether you need to use mounting rails on the side of your drive, insert the drive in the open drive bay from the front. If the drive fits snugly with little or no clearance on either side of the drive, you do not need to use mounting rails. The drive can be mounted directly to the chassis of the computer. Line up the holes in the rails with the holes in the side of the drive bay and insert the mounting screws.

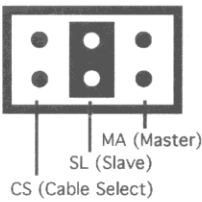**CAUTION:** Use only M3 screws, no longer than 5mm (0.2 inch).

If you must use mounting rails, line up the holes in the rails with the holes in the side of the drive and attach with screws. The smooth side of the rails should be facing away from the drive's chassis. Check the positioning of the rails by sliding the drive into the bay before you connect any cables. Rails are usually available at computer supply stores.

Device Configuration

You have three options for installing a new IDE device into your system:

Option 1: Attach the FX Series CD-ROM drive as a "slave" to the same cable on which your hard disk drive is connected. (This is known as "daisy-chaining".)

On the back of your CD-ROM drive you will find the device configuration jumper. It is a set of six pins with a plastic jumper on two of them. There are three jumper positions: CS (Cable Select), SL (Slave), and MA (Master). The CD-ROM drive leaves the factory set as a slave. Have it set as slave for this configuration.


```
        MA (Master)
      SL (Slave)
   CS (Cable Select)
```

If your IDE port is currently controlling one hard drive, the hard disk drive may be configured either as a single drive or as a master drive. Some hard drives may require that their jumpers be changed in order to add a second

drive to the same cable. Refer to your hard drive manual, or call your hard drive vendor for jumper settings.

Attach the spare connector on your hard drive ribbon cable to the IDE interface port of the CD-ROM drive. The colored stripe side of the cable is pin 1.

Option 2: Connect the CD-ROM drive to a second IDE controller port.

If your computer has more than one IDE port, it is a good idea to use separate IDE ports for your hard drive and CD-ROM drive. This will ensure that your hard drive's performance and speed is not affected by having the CD-ROM drive on the same cable. It will also be easier to add another CD-ROM drive to the second cable later.

If your CD-ROM drive will be the only device attached to this cable on the second port, set its configuration jumper to Master. Connect a 40-pin ribbon cable from the IDE interface port on the rear of the CD-ROM drive to the interface port on the controller card or motherboard. Line up the colored stripe on the cable to pin 1 at both connections.

Option 3: **Connect the CD-ROM to a 40 pin IDE port on a sound card**.

Follow the instructions in your sound card manual. If you are getting an error "Unable to Detect Atapi IDE CD-ROM drive":

1. Make sure this 40 pin connection is not labeled Mitsumi. This is an old proprietary interface and is not compatible with our new IDE drives. Many older sound cards will not have 40 pin ports for IDE CD-ROM drives.

2. Check to see if you may have a second 40 pin IDE port on your hard drive controller card. This is probably causing a conflict with the IDE port on the sound card, both may be set at Secondary IDE address 170 and interrupt 15. Most systems will only recognize the Primary and Secondary IDE ports. There can be only one Secondary IDE-port enabled in the system. See Custom Installation on page 16 for more information about IDE.

Disable the second IDE port on the hard drive controller card. Keep the CD-ROM drive 40 pin cable connected to the sound card IDE port.

       -or-

(Preferred choice) Disable IDE port on sound card and run the 40 pin cable from the CD-ROM drive to the second 40 pin IDE port on the controller card. Connect only the audio cable from the CD-ROM to the sound card. If the Mitsumi IDE driver software was installed you don't need to install the software again. However you may need to reinstall the sound card software.

If it asks about the CD-ROM drive, choose NONE so the sound card is not looking on its own IDE port for the CD-ROM drive.

3. If you don't have a second 40 pin IDE port on your system and you still get the error consult your sound card manual to find the IDE port address setting on that sound card. Our software looks for address 170 and Interrupt 15 automatically. Some sound cards provide unique IDE settings.

Configure the sound card at IDE address 170 and Interrupt 15. (This may be done with physical jumpers on the sound card that set the IDE port address and interrupt. If there are none you may be able to configure through the sound card's software utility program. If the sound card supports IDE channel 3 & 4, see Custom Installation on page 16 for help. If you need further assistance call the sound card's technical support. All sound cards are unique and may require special instructions.
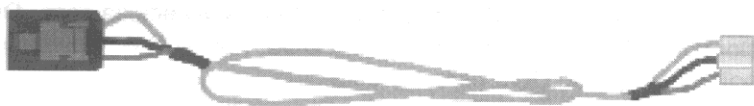
IDE (Data) Cable

A 40-pin ribbon cable controls the CD-ROM drive and provides for data transfer from the drive to the computer. The colored stripe on the cable designates pin one, and should line up with pin one as marked on any port where it is connected.

Power Cable

A 4-wire cable runs from the power supply in your computer to the DC power plug on the back of the CD-ROM drive. This connector is keyed so that it plugs in only one way. If all the power connectors from your power supply are used, you can buy a power Y-splitter cable at an electronics store.

Audio Cable

If you have a sound card in your computer, you will probably want to hear stereo audio through your sound card and speakers. In order to play audio from your CD-ROM drive, you will need to connect the CD-ROM drive to your sound card with an audio cable. Because there are so many different kinds of sound cards, each requiring its own type of audio connector, a suitable audio cable was probably not supplied with your CD-ROM drive. If there was an audio cable included, it is possible that it will not work with your sound card.

Software Installation

Once the CD-ROM drive is configured to your system, software installation is simple and straightforward. The MS-DOS device driver and setup utility disk supplied with the drive contains an installer that makes all the necessary modifications to your system to activate the drive whenever you boot the computer. It also contains other helpful information and utilities you can use if things don't go quite right.

Updates of the MS-DOS IDE device driver are available through our World Wide Web site (http://www.eciusa.com) or BBS (see Technical Support section), as they are released. If you did not receive a floppy diskette with the label that is represented below please download this from our web page or BBS.

Please note that device drivers for Windows 95, NT, and OS/2 as well as other operating systems are furnished by the operating system manufacturers. These operating systems supply industry standard, general purpose ATAPI/IDE drivers for CD-ROM drives. If you are going to boot directly into DOS when using one of these operating systems the boot disk must have the driver installed for the CD-ROM drive to be available.

Use the Device Driver & Setup Utilities diskette came with your CD-ROM drive for drive testing and DOS driver installation. Updates of this diskette is available for you to download from our web site at www.eciusa.com. Disc Inspector (DI.EXE) program must run from DOS, not DOS windows. Be sure to reboot the system to DOS before proceeding.

MITSUMI

ATAPI (IDE Bus) CD-ROM DRIVE
Device Driver & Setup Utilities
Version 1.54

Setup Instructions:
1. Restart computer to DOS
2. Make this disk write enabled
3. Insert this disk in drive A
4. Type a:\di and press ENTER

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CD-ROM Drive Test and DOS Driver Installation

1. If running Windows 95' restart the computer into DOS mode.

2. Insert the supplied installation disk into drive A (or B).

3. From the DOS prompt, type A: (or B:) and press ENTER.

4. Type DI.EXE and press ENTER.

5. Follow the instructions on the screen.

6. Hit the enter key to start analyzing the system's hardware.

7. From the Drive menu choose Run Tests.

8. You should see a description of the CD-ROM model number, port address, IRQ, drive jumper designation, and firmware version. If you do not see any CD-ROM information, shutdown the power and check the cable and power connections. Restart your computer to DOS mode and retest the drive with Disc Inspector.

9. To run the test hold the Alt key and hit the highlighted letter. (Alt-T for Tray/Interface, Alt-A for Audio Channels, and Alt-D for Data/ Media)

10. You will see a passed or failed message after the test is done.

11. Passing these test will verify that the drive is working properly. If one of the test fails refer to the troubleshooting section for help.

12. Hit the Esc key to exit the testing section.

13. From the Install menu hit the enter key.

14. Follow the instructions on screen using the driver default settings.

15. When the installation is complete, remove the diskette and reboot the system.

If the Mitsumi CD-ROM drive was not detected when your system was analyzed by the Disc Inspector you have an IDE configuration problem. See the Device Configuration section of this manual for troubleshooting assistance.

After the CD-ROM-drive installation is complete and you have rebooted your computer the drive letter of your CD-ROM drive will be the next available drive letter on your system. For example, if your last drive or drive partition is letter C:, your CD-ROM will be letter D:.

With a disc in the CD-ROM drive, type DIR D:. Your computer should display a directory of files on the CD-ROM disc.

You are now ready to start using your CD-ROM drive.

What the installation procedure does:

1. Creates a device driver line in your CONFIG.SYS file.

In order for your computer to recognize the CD-ROM drive, a device driver file must be copied to your computer and loaded by CONFIG.SYS when you start your computer. The device driver for your FX Series CD-ROM drive is named MTMCDAI.SYS. The installation program will create a subdirectory named MTM (unless you specify another directory name) on your C: drive, or the drive you specified. It then copies the MTMCDAI.SYS file to this directory.

The installation program adds these lines to your CONFIG.SYS file:

```
rem ---------- MTM ATAPI CD-ROM ----------
DEVICE=C:\MTM\MTMCDAI.SYS /D:MTMIDE01
rem ---------- MTM ATAPI CD-ROM ----------
```

The middle line tells the computer to go to the C: subdirectory MTM, and load the MTMCDAI.SYS file into memory.

MTMIDE01 is the device name the installer has given to your CD-ROM drive. It will be used by Microsoft CD-ROM Extensions (MSCDEX) to assign a DOS drive letter to the CD-ROM device.

2. Creates an MSCDEX line in your AUTOEXEC.BAT file.

Microsoft CD-ROM Extensions (MSCDEX) is a program that allows a CD-ROM disc to be accessed using DOS commands. It assigns a DOS drive letter to the CD-ROM device, and "interprets" the CD-ROM file format. If you are currently using DOS version 6.0 or later, you will find the file MSCDEX.EXE in your DOS directory.

The installation program will add these lines to your AUTOEXEC.BAT file:

```
rem ---------- MTM ATAPI CD-ROM ----------
C:\DOS\MSCDEX.EXE /D:MTMIDE01 /M:10
rem ---------- MTM ATAPI CD-ROM ----------
```

The middle line tells your computer to find the device that uses the name

MTMIDE01 and assign the next available drive letter to it. The drive name must be the same defined in CONFIG.SYS, otherwise the CD-ROM drive will not be found. Do not specify any subdirectory name as a drive name. By doing so, the subdirectory may be damaged.

/M:10 is a software switch that tells your computer to reserve 10 buffers in memory for faster CD-ROM access. For more information on MSCDEX parameters, go to the DOS directory and type HELP. Choose MSCDEX from the list of files and press ENTER.

Custom Installation

In most instances, the default configuration used in the Quick Installation will be sufficient for your system. If you have problems with the installation of your drive, if you have other IDE devices that may be causing a conflict, or if you would like to customize your installation, the following information has been included:

Use a text editor such as MS-DOS "EDIT" to modify the appropriate lines in your CONFIG.SYS and AUTOEXEC.BAT files.

1. For the MTMCDAI.SYS device driver, the line in CONFIG.SYS is in the following format:

```
DEVICE=[drive:][path]MTMCDAI.SYS [/D:devicename] [/
P:xxx,yy] [/A:n] [/U:n] [/L:xx]
```

[drive:][path]MTMCDAI.SYS specifies the location (drive and directory) and name of the device driver file.

[/D:devicename] specifies the device name of the CD-ROM drive (8 characters maximum). For example:

```
DEVICE=C:\MTM\MTMCDAI.SYS /D:MTMIDE01
```

In this line, the device name is MTMIDE01. The device name specified in the MSCDEX.EXE line in the AUTOEXEC.BAT file must be identical to this.

[/P:xxx,yy] specifies the IDE port base address (xxx), and the interrupt request channel (yy).

```
xxx = 1f0: Primary (Channel 1)
      170: Secondary (Channel 2)
      1e8: Channel 3
      168: Channel 4
 yy = 14: Primary (Channel 1)
      15 or 10:  Secondary (Channel 2)
      12 or 11:  Channel 3
      10 or 9:   Channel 4
```

The device driver will search all available IDE ports to find the attached CD-ROM drives. If you need to specify the port addresses and interrupt request channels, the syntax in the CONFIG.SYS file should be as follows:

Connected to the Primary IDE-port

```
DEVICE=C:\MTM\MTMCDAI.SYS /D:MTMIDE01 /P:1f0,14
```

Connect to a Secondary IDE-port

```
DEVICE=C:\MTM\MTMCDAI.SYS /D:MTMIDE01 /P:170,15
```

[/A:*n*] Specifies the audio play mode. For a stereo CD, /A:0 or /A:1 is acceptable. For a monaural CD (left or right channel only), /A:1 will play the monaural audio signal from both right and left channels. Default is n=0.

[/U:*n*] specifies the door lock or unlock. /U:0 is 'unlock', /U:1 is 'lock'. Default is n=0.

[/L:*xx*] specifies the message language. Applicable language is as follows:

```
xx = US:    English (default)
     GR:    German
     FR:    French
     SP:    Spanish
     IT:    Italian
     JP:    Japanese
```

If you want messages in English, it is not necessary to specify a language. If you want messages in Japanese, for example, the syntax in the CONFIG.SYS file would be as follows:

```
DEVICE=C:\MTM\MTMCDAI.SYS /D:MTMIDE01 /L:JP
```

2. The MSCDEX.EXE line in AUTOEXEC.BAT is in the following format:

[*drive:*][*path*]MSCDEX.EXE [/D:*devicename*] [/M:*xx*]

If you are using MS-DOS 6 or later, a recent version of MSCDEX.EXE should reside in your DOS directory.

Device names used in the MSCDEX line must match those used in the MTMCDAI line in CONFIG.SYS.

There must be one *devicename* in this line for each CD-ROM device in your system. The order in which device names appear is the order in which drive letters will be assigned to them.

[/M:*xx*] tells your computer to reserve xx buffers in memory for faster CD-ROM access. For more information on MSCDEX parameters, go to the DOS directory and type HELP. Choose MSCDEX from the list of files and press ENTER.

[/L:x] tells your computer to assign a drive letter to the CD-ROM drive.

Smartdrive - Disabling CD-ROM Disc Caching

SMARTDRV, in MS-DOS version 6.2 or PC-DOS version 6.3 or later was designed to include CD-ROM disc caching. However, if CD-ROM caching is enabled, some CDs (such as Photo CD) will not work properly. In this case, you should add a /U switch to the end of the SMARTDRV line in AUTOEXEC.BAT to disable CD-ROM caching.
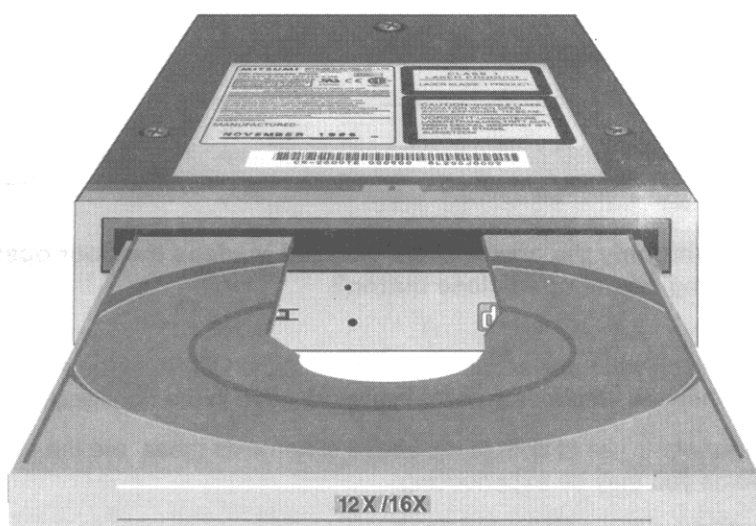
```
SMARTDRV.EXE /U
```

Drive Operation

This drive is able to mount vertically or horizontally. The image below illustrates the horizontal position.

Open the disc tray by pressing the OPEN/CLOSE button.

Place the Compact Disc in the center of the tray. Be sure the disc is placed flat in the tray.

Close the disc tray by pressing the OPEN/CLOSE button or lightly pushing the tray panel back into the drive. The drive should now be in its normal operating position.
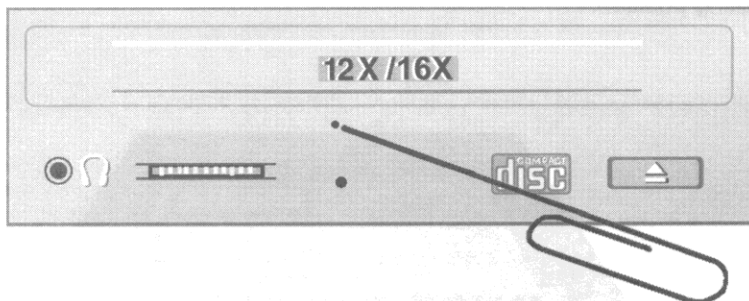
If the Disc Tray does not Open

First check that the power cord is connected. Check that the computer's power is turned on. From a DOS prompt, type:

```
TYPE C:\CONFIG.SYS | MORE
```

and press ENTER. Check the CONFIG.SYS file displayed for a line with MTMCDAI.SYS in it. If the disc tray still does not open, turn the computer's power off and push the emergency eject gently with a large paper clip extended as shown below.

NOTE: With only the power cable plugged in, does the door open by pushing on the open/close button?

1. With only the power cable plugged in to the CD-ROM the door opens.
2. When the 40 pin data cable is also plugged in the door doesn't open.

If the answer is yes to both of the above statements these are the possible problems you may be experiencing:

a. 40 pin data cable is damaged.
b. Pin 1 on the 40 pin cable is not lined up with the colored stripe on cable
c. You are plugging the 40 pin ribbon cable into a **Mitsumi** proprietary port.

This is not compatible with the newer Mitsumi IDE drive. A Mitsumi port is an older technology and works only for the models FX001D, FX001, LU005S, LU002S. If the answer is no to all the above take the drive back to the store and replace it.

Troubleshooting

This section is designed to help you identify and solve some common problems you may encounter when installing or operating your CD-ROM drive. Its purpose is to give you the ability to fix many simple problems without having to call technical support. Most commonly asked questions and tips for solutions are provided at our World Wide Web site (http://www.eciusa.com).

First, refer to the hardware and software installation procedures, and make sure you have followed them correctly. Double-check cable connections, jumper settings, and any connections that may have been loosened during hardware installation.

Next, check the software installation to ensure that the CD-ROM device driver is on your hard drive, and that the line in CONFIG.SYS that loads the device driver points to the correct location and the file name. If you have edited AUTOEXEC.BAT or CONFIG.SYS after software installation, check for extra or missing spaces, reversed slashes, etc.

Windows 95 and FX Series IDE CD-ROM drives

Microsoft provides protected mode drivers for Windows 95 as a part of the operating system. The FX Series CD-ROM drives are ATAPI/IDE drives supported under Window 95's generic IDE protected mode driver. When you are adding the CD-ROM drive to Windows 95, do the following:

· Select "Start"

· Select "Shutdown"

· Select "Restart the Computer in MS-DOS mode"

When the DOS prompt appears, install the FX Series IDE real-mode device driver (MTMCDAI.SYS) as described in the Software Installation section. The Microsoft CD-ROM extensions, MSCDEX.EXE, can be found in the directory C:\WINDOWS\COMMAND. When you have finished, type EXIT, and Windows 95 restarts.

Windows 95 will detect the change in the CONFIG.SYS and AUTOEXEC.BAT files and respond by setting up the correct device drivers in the Device Manager. There is no way to do this within Windows 95.

If you go to the Control Panel and select System, the Device Manager page will show you a CD-ROM drive with a + sign in front of it. Click on the + sign

and you should see:

```
MITSUMI CD-ROM                    !B(or !A)
```

If your drive was working in DOS and Windows 3.1 before you installed Windows 95, the installation should automatically detect the drive. If it does not, there may be another issue. The DOS device driver has no problem with a drive on the Secondary IDE port (port 170h, IRQ 15) jumpered as a Slave (without a Master drive). Windows 95, NT and OS/2 will not find a drive set up this way. Change the jumper setting to Master and reinstall the driver using the above method.

The drive does not operate after software installation.

Ensure that both ends of the interface cable, audio cable, and power cable are firmly plugged into the right pins.

Make sure there is a disc in the drive, and that the label side of the disc is up.

If the drive was recently moved from a cold environment to a warm one, there may be condensation on the lens. Remove the disc and leave the drive turned on for about an hour before using it.

Previously existing CD-ROM drive(s) can no longer be accessed by the system.

Check the MSCDEX line in the AUTOEXEC.BAT file. If there was a CD-ROM drive(s) previously installed, there will probably now be two lines that load MSCDEX. MSCDEX is a TSR (Terminate and Stay Resident) program that can be loaded only once; the device names of all CD-ROM drives must be included on the same line after MSCDEX. For example, if the two lines in your AUTOEXEC.BAT file are:

```
C:\DOS\MSCDEX.EXE /D:MTMIDE01
C:\DOS\MSCDEX.EXE /D:MSCD001
```

They should be combined on one line to read:

```
C:\DOS\MSCDEX.EXE /D:MTMIDE01 /D:MSCD001
```

The order in which device names appear is the order in which drive letters will be assigned to them.

Error message: "Not enough drive letters available."

DOS automatically reserves the drive letters A through E for use with local (non-networked) drives. If you have floppy drives A and B, and hard drives C, D and E, for example, all the reserved drive letters are already in use. To add a drive letter for your CD-ROM drive, add the following line to your CONFIG.SYS file:

```
LASTDRIVE=x
```

where x is the last drive letter to be reserved (in this case, F).

Error message "CDR 101 - Not Ready Reading Drive (X)"

If you have just inserted a disc in the drive, wait a few seconds for the disc to "spin up" and try again.

Check the disc for scratches, dirt, and fingerprints. Make sure the label side of the disc is up.

Check to see if the disc is a CD-ROM disc, not an audio disc. The CD-ROM drive will play CD audio discs, but audio discs are not accessible with DOS commands.

Error message "CDR 103 - Not ISO 9660 or High Sierra format"

The disc may be a CD-ROM intended for another computer or operating system, such as Macintosh or Sun, or it does not contain data in ISO 9660 format.

CD-ROM Sound

There are two types of audio you may find when using CD-ROMs. You may find either, both, or no sound at all in a CD-ROM application.

CD Audio: Data translated directly by your CD-ROM drive into sound. All CD Audio discs and some CD-ROM discs use this type of sound. You can hear the audio CD by plugging a set of headphones or powered speakers into the audio jack on the front of your drive.

Audio files: Data (.WAV or .MID files) which are transferred from your CD-ROM disc into your computer and translated by a sound card into sound. You need a sound card to hear this type of audio. If you have a sound card, you need an audio cable to connect the CD-ROM drive to the sound card. Contact the manufacturer of your sound card to obtain the correct cable.

Music CDs: If you hear no sound from the speakers but you hear sound from other cd games/data discs this is a hardware audio cable problem. There is no standard for audio cables, what you have is probably incompatible. Exchange the audio cable. This is the case even if you can hear no, little, or full sound from the headset.

Music CDs - can't access the disc: Make sure you are not trying to get a directory from the audio disc, for example in file manager. In windows 3.1 or 3.11 you can use Media Player to play a music disc. This is located in your accessories window. Click on the Device menu and choose CD Audio, If it is not listed there the windows driver MCI CD audio is not loaded. Have a music disc in the drive. Go to control panels, drivers, add MCI CD audio to the system, follow instructions, close out.

Technical Support

What to do BEFORE you call technical support:

If you experience a problem while installing or operating your CD-ROM drive, PLEASE REFER FIRST TO THE TROUBLESHOOTING SECTION IN THIS MANUAL. It contains solutions to the most common problems reported to our technical support staff.

It is our desire to ensure that you are satisfied with your CD-ROM drive, and there are things you can do before you call us that will help us get you up and running quickly. Our technical support staff is knowledgeable, friendly, and helpful, but unfortunately they are not clairvoyant. Their ability to help you depends a great deal on your ability to help them. You must act as an observer for them as they try to diagnose and fix your problem over the phone.

Before contacting Mitsumi technical support you need to run the Disc Inspector program came with your drive. Please refer to CD-ROM Drive Test and DOS Driver Installation on page 13 for details. Write down all errors or reports given by the program. This will help our technical support staff diagnose the problem with your CD-ROM drive.

Please gather the following information BEFORE you contact Technical Support. It will help us solve your problem much more quickly.

· The model and serial number of your CD-ROM drive. They can be found on the top or the bottom of your CD-ROM drive. Your receipt may have this information also.

· The physical location of the CD-ROM drive. For example where is the 40 pin ribbon cable plugged in. The IDE port may be on a sound card, the motherboard, or its own IDE controller card. This is essential information for the technicians to perform troubleshooting of your problem.

· The version number of the device driver, which can be found on the label of the floppy diskette that came with your CD-ROM drive.

· The versions of DOS, Windows, Windows 95, Windows NT, or OS/2 you are using.

· The brand name and model number of your computer.

· The processor and speed. For example: 486DX2-66.

· Printouts of your AUTOEXEC.BAT and CONFIG.SYS files.

How and When to Contact Technical Support

There are several ways for you to contact our technical support department. They are listed in order of preference.

1. World Wide Web - Log on to Internet and visit our **World Wide Web site at http://www.eciusa.com**, and examine the descriptions and solutions listed about how to fix or circumvent common technical problems. You can download our most up to date driver software, and leave your inquiry. The inquiry will be answered daily.

2. **Fax Back - Dial 800-801-7932** from your fax phone. Follow the voice prompts and request a catalog of available documents, which will be printed on your fax machine. Review the catalog, and when you have found the document(s) you require, call back, follow the prompts, and request each document by number.

3. Log on to our **Bulletin Board System 415-691-4469** (1,200-28,800 bps and 8-N-1). This BBS has the newest driver software for you to download.

4. Call our **Technical Support** department at **800-801-7927** between the hours of **8 AM and 6 PM Central Time**, Monday through Friday.

Federal Communications Commission (FCC) Information

This unit generates and uses radio frequency energy and if it is not installed and used properly in strict accordance with the manufacturer's instructions, it may cause interference with radio and television reception. This unit has been tested and found to comply with the limits for a class B computing device, in accordance with the specifications in Part 15 of the FCC rules which are designed to provide reasonable protection against such interference in a residential installation.

We cannot guarantee, however, that interference will not occur in a particular installation. If this unit does cause interference to radio or television reception, which can be determined by turning the unit off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

  · Reorient the receiving antenna

  · Relocate the unit with respect to the receiver

  · Move the unit away from the receiver

  · Plug the unit into a different outlet so that the unit and the receiver are on different branch circuits

If necessary, consult your dealer or an experienced radio/television engineer for additional suggestions. The booklet "How to Identify and Resolve Radio-TV Interference Problems," Stock No. 004-000-00345-4, may be helpful. This booklet was prepared by the Federal Communications Commission and is available from the U.S. Government Printing Office, Washington, DC 20402.

Changes or modifications not expressly approved by the manufacturer for compliance could void the user's authority to operate the equipment.

MITSUMI IDE 16x Series CD-ROM Drive Installation Manual

Specifications (FX14x IDE CD-ROM Drive)

Supported disc formats (read only)
    CD-ROM Mode 1; CD-DA; CD-i; Video CD; CD-Extra (CD plus)
    CD-ROM XA Mode 2, Forms 1 and 2; Photo CD, CD-R

Disc diameters	12 cm (horizontal and vertical position)
	8 cm (horizontal position only)
Interface	ATAPI specification SFF-8020

Data transfer rate (average)

CD-ROM Mode 1	1800 Kbytes/sec (inner disc: 12x speed)
	2400 Kbytes/sec (outer disc: 16x speed)
CD-ROM Mode 2	2067 Kbytes/sec (inner disc: 12x speed)
	2756 Kbytes/sec (outer disc: 16x speed)
IDE Data transfer rate (burst)	11.1 Mbytes/sec (16 bits PIO mode)
	8.33 Mbytes/sec (single word DMA mode)
	16.7 Mbytes/sec (multiword DMA mode)

Average access speeds (including the latency time)

1/3 stroke	120 ms typical
Full stroke	250 ms typical
Data buffer	256 Kbytes

Audio

Channels	2 channels
Sampling frequency 44.1 kHz	
Filtering	8 times over-sampling, digital/analog filters
Quantization	1 bit (16bits linear equivalent)
Volume control	Software, L & R separate volume control

Reliability (MTBF)

Continuous mode	20,000 hours
Power on hour	50,000 hours
Tray open/close	>30,000 cycles

Dimensions and weight

Width/Height/Depth	148 x 42 x 202 mm
Weight	1.04 +/- 0.25 kg

Power Supply

DC +5V	+5V +/-5%, 0.45A max.
DC +12V	+12V +/-5%, 2.2A max.

Environmental conditions

Operating	5~50°C, 20 to 85%RH non-condensation
Storage	-30~66°C, 10 to 95%RH non-condensation